

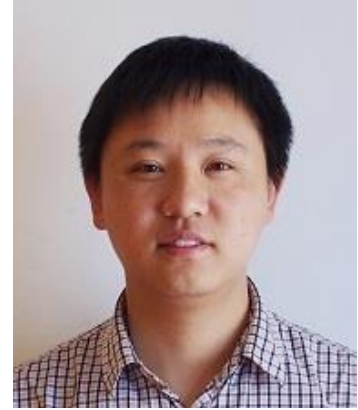
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## Design of Charging System: From Perspective of Commercial Charging Stations

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### Abstract:

Electric Vehicles (EVs) have made rapid development recently thanks to their prominent advantages in reducing greenhouse gas emissions, and fuel consumption and maintenance costs. The rollout of EVs depends on convenient and cost-effective charging services, and a charging network is needed for EVs right off the road. As the EV penetration continues to grow, the EV charging problem has been becoming more serious and it is difficult for the public charging facilities developed by the government to satisfy all the charging requirements of EVs. Thus, commercial charging stations should be developed to offer convenient charging services. Our research focuses on the design of charging networks from the perspective of commercial charging stations. Firstly, we designed an EV charging network deployment scheme to maximize the total profit of charging service provider considering transportation and power grid constraints, which can reduce the total construction cost while increasing the total profit. Secondly, considering the charging station with dual charging modes, we design an optimal pricing scheme to guide and coordinate the charging processes of EVs, such that the service dropping rate of the charging station can be minimized. Finally, we conclude our works and present directions for future work.

### Biography:

Yongmin Zhang received the Ph.D. degree in Control Science and Engineering from Zhejiang University, Hangzhou, Zhejiang, China, in 2015, supervised by Prof. Jiming Chen. He is a member of the Networked Sensing and Control group (NeSC). From November 2013 to June 2014, he was a visiting scholar, supervised by Steven Low, with the California Institute of Technology, Pasadena, CA, USA. Since 2015, he has joined Prof. Lin Cai's Communication Networks Lab (CNLAB) as a postdoctoral research fellow at the University of Victoria, Canada. His research interests include resource management and distributed optimization in smart grid and wireless networks. He served as a Guest Editor for Peer-to-Peer Networking and Applications (PPNA) and as a TPC member for ChinaCom, VTC, Globecom, etc. He won the best paper award of IEEE PIMRC 2012.